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10/700,828	11/04/2003	Thomas W. Stone	10020907-1	6251
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Kathy Manke Avago Technologies Limited 4380 Ziegler Road Fort Collins, CO 80525			EXAMINER BELLO, AGUSTIN	
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Please find below and/or attached an Office communication concerning this application or proceeding.

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avagoip@system.foundationip.com
kathy.manke@avagotech.com
scott.weitzel@avagotech.com



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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/700,828
Filing Date: November 04, 2003
Appellant(s): STONE, THOMAS W.

John Pessetto
For Appellant

EXAMINER'S ANSWER

MAILED

JAN 24 2008

GROUP 2800

This is in response to the appeal brief filed 9/12/07 appealing from the Office action mailed 4/18/07.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,956,987	DOERR	10-2005
7,031,573	Volodin; Boris L. et al.	04-2006

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doerr (U.S. Patent No. 6,956,987) in view of Volodin (U.S. Patent No. 7,031,573).

Regarding claims 1, 5, 11-14, Doerr teaches a method for optically switching/routing comprising the steps of: separating input optical radiation into distinct input channels (reference numeral 705-1 in Figure 7; reference numeral 805-1 in Figure 8); selecting desired distinct output channels (reference numeral 710-2 in Figure 7; reference numeral 810-2 in Figure 8); propagating said distinct input channels through a selectable switching/routing sub-system (reference numeral 750 in Figure 7; reference numeral 850 in Figure 8) in order to direct said distinct input channels to desired distinct output channels; recombining said desired distinct output channels (reference numeral 705-2 in Figure 7; reference numeral 805-2 in Figure 8). Doerr differs from the claimed invention in that Doerr fails to specifically teach that the selectable switching/routing sub-system is grating based. However, Volodin, in the same field of optical switching, teaches that selectable grating based switching/routing sub-system are well known in the art (reference numeral 1020 in Figure 10). One skilled in the art would have been

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motivated to employ a selectable grating based switching/routing sub-system as taught by Volodin since such switches have been found to provide optical transparency for a wide range of wavelengths, provide excellent longevity, outstanding thermal stability, good dynamic range, excellent optical quality, low cost, a variety of shapes, and refractive index isotropy (column 4 lines 59-67 of Volodin). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to employ a selectable grating based switching/routing sub-system as taught by Volodin in the device of Doerr.

Regarding claims 2, 7, 8, Doerr teaches that the step of separating input optical radiation comprises the step of utilizing a separating sub-system comprising a pair of separating gratings (reference numeral 820-1 in Figure 8); and, wherein the step of recombining said desired distinct output channels comprises the step of utilizing a recombining sub-system comprising a pair of recombining gratings (reference numeral 820-2 in Figure 8).

Regarding claims 3, 15, Doerr teaches that the step of separating input optical radiation comprises the step of utilizing a separating sub-system comprising at least one Array Waveguide Grating (AWG) (reference numeral 820-1 in Figure 8); and, wherein the step of recombining said desired distinct output channels comprises the step of utilizing a recombining sub-system comprising at least one Array Waveguide Grating (reference numeral 820-2 in Figure 8).

Regarding claim 4, the combination of Doerr and Volodin teaches that the grating based switching/routing sub-system comprises a volume holographic grating based switching/routing sub-system (reference numeral 1020 in Figure 10).

Regarding claim 6, the combination of Doerr and Volodin teaches that the selectable switching/routing sub-system includes at least one pixellated switchable component (reference numeral 850 in Figure 8 of Doerr; reference numeral 1020 in Figure 10 of Volodin).

Regarding claim 9, the combination of references differs from the claimed invention in that it fails to specifically teach that the at least one of said first separating diffraction grating, said second separating diffraction grating, said first recombining diffraction grating, and said second recombining diffraction grating comprises a volume holographic grating. However, as noted above, Volodin teaches that the use of volume holographic gratings as combining and separating gratings is well known in the art. One skilled in the art would have been motivated to employ volume holographic gratings as the combining and separating gratings of the system for the advantages presented above. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to employ volume holographic gratings as combining and separating gratings in the system of the combination of references.

Regarding claim 10, Doerr teaches that said first separating diffraction grating is substantially parallel to said second separating diffraction grating, and, said first recombining diffraction grating is substantially parallel to said second recombining diffraction grating (inherent in the AWGs of Doerr).

Regarding claim 16, Doerr teaches at least one microlens array (reference numeral 830-1, 830-2 in Figure 8; reference numeral 305 in Figure 3).

Regarding claim 17, the combination of Doerr and Volodin teaches anamorphic optics for circularizing the waveguide outputs of the separating AWG (reference numeral 830-2 in Figure 8 of Doerr; reference numeral 1011-1014 in Figure 10 of Volodin).

Regarding claim 18, both Doerr and Volodin teach means operably connected to said selectable switching and routing sub-system for controlling the state of each pixels from a plurality of pixels; said controlling means being capable of enabling the selecting of desired distinct output channels (column 2 lines 32-34 of Doerr; column 3 line 12 of Volodin).

(10) Response to Argument

Appellant contends that the examiner has failed to establish a *prima facie* case of obviousness in combining the teachings of Doerr and Volodin. To substantiate this argument Appellant asserts that the examiner has failed to provide any suggestion or motivation to combine the reference teachings and provides what Appellant considers proof of this apparent deficiency by quoting the rejection formulated in the examiner's office action.

However, upon close review of the examiner's office action and the rejection therein it becomes apparent that Appellant has attempted to usurp the examiner's rationale in formulating the rejection by misrepresenting the examiner's rejection in such a way that it omits the very requirement that Appellant contends is missing. In fact, the examiner specifically and in no uncertain terms provides motivation for combining the teachings of Doerr with the teachings of Volodin by stating in the rejection of claims 1, 5, and 11-14 that:

"One skilled in the art would have been motivated to employ a selectable grating based switching/routing sub-system as taught by Volodin since such switches have been found to provide optical transparency for a wide range of wavelengths, provide excellent longevity, outstanding thermal stability, good dynamic range, excellent optical quality, low cost, a variety of shapes, and refractive index isotropy (column 4 lines 59-67 of Volodin)." (Emphasis added to indicate that which Appellant has omitted)

Clearly, the examiner has met the requirement in question for establishing a *prima facie* case of obviousness by not only providing motivation for combining the teachings of the cited prior art, but providing motivation found in the prior art itself, namely Volodin. However, the Appellant perpetuates the ruse by advancing baseless allegations that the examiner has not supported the statements made in the rejection or has not referred to any prior art to support the motivation noted in the rejection. Of course, the examiner has done the exact opposite and the examiner exhorts the Board to see through Appellant's arguments predicated on falsehoods to what was undeniably provided in black and white to Appellant in the final office action mailed April 18th, 2007.

The balance of Appellant's comments are directed to dependent claims which depend from claims 1, 5, and 11-14 noted above. With the exception of dependent claims 9 and 17, Appellant fails to introduce any new arguments other than those previously discussed. Regarding claim 9 Appellant again argues that the examiner has failed to establish a *prima facie* case of obviousness in combining the teachings of Doerr and Volodin by failing to provide a suggestion or motivation to combine the teachings as proposed. However, the examiner notes that claim 9 is dependent from claim 7 which is dependent from claim 5, the rejection of which clearly provides motivation for combining the teachings of Doerr and Volodin. Furthermore, as noted in the rejection of claim 9, the examiner refers back to the motivation cited in rejecting the base claim, i.e. claim 5, for motivation for combining the teachings of Doerr and Volodin. As to claim 17, the office action clearly indicates the exact place the examiner believes the cited prior art meets the limitation of the claimed invention. Furthermore, motivation for combining the

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teachings of the cited prior art is provided in the rejection of the independent claims from which claim 17 depends.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



Agustin Bello
(Primary Examiner)



JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Conferees:

Jason Chan (SPE)

Kenneth Vanderpuye (SPE)



KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER